

GOLF TEE DEVICE

The present invention relates to a golf tee device.

Golf driving ranges are popularly used to practise long shots that may be used during a game of golf. Usually these are the first shot of a "hole" whereby the rules of golf allow the player to elevate the ball through use of a tee. Another situation in which tees are used is during a golf game, such as that described in WO0149379, in which golfers can play on a suitably modified golf course without having to keep score. When a tee is used during a game of golf, different heights can be achieved according to by how far the tee is pushed into the ground. Different heights are desirable depending on which shot the player requires (and hence which club they are using) and the height of the player. Therefore, it is desirable to provide height-adjustable tees at a driving range to more closely simulate the experience of playing a round of golf.

The tees currently provided in driving ranges tend to be either the conventional tee as used on a golf course, or a fixed-height rubber tee. Conventional tees can fly out of their holder when the golf ball is struck. This is a health and safety problem and also results in loss of the tee. The fixed-height tees sometimes provided are not adjustable according to the needs of the individual player. Moreover, the tees of both these systems protrude through a hole in the stance mat on which the player stands to make his shot, and therefore may require lifting or removal of the stance mat in order to be changed.

GB2327193A and US6110060 disclose height-adjustable golf tees. However, these tees can only be adjusted to a few specific heights, thereby limiting their utility.

US6062989 discloses a base into which a conventional tee can be inserted. The base contains a mouldable wax to allow the tee to be pushed in by different amounts thereby providing any number of different ball heights. However, the tee of such a device is at risk of flying out of its base when the ball is struck, or of moving relative to the base so that it needs readjusting before the next shot is taken.

WO9937368 discloses a height-adjustable tee. However, this tee is located into a base that would be situated underneath the stance mat at a driving range therefore requiring lifting or removal of the stance mat in order to change the tee, for example, if it breaks.

5 US6083121 discloses a height-adjustable tee based on a vertically moveable piston within a housing. However, this tee is of a relatively complex construction, requiring many parts that could break or go missing. A particular disadvantage of this type of tee is that the ball support piston can only be removed from below, requiring lifting and movement of the stance mat. An alternative embodiment in which the upper part of the ball support piston
10 can be removed from above has a relatively complicated connection mechanism. Moreover, it has no apparent mechanism for eliminating movement of the ball support member under impact, and so it would be likely to move under the impact of a swing from a golf club.

15 The present invention seeks to overcome or reduce one or more of the above problems.

According to an aspect of the present invention, there is provided a golf tee device comprising a tee member removably supported in a holder member, wherein the tee member is movable in a continuous manner in a substantially vertical direction relative to
20 the holder member, and wherein there is provided means to prevent movement between the tee member and the holder member on striking of a golf ball supported by the tee member.

Preferably the means to prevent movement prevents axial movement of the tee member relative to the holder member. This therefore ensures that unless deliberately adjusted, the
25 tee member remains at the position at which it was prior to a shot being taken.

Preferably the tee member is supported, and its movement within the holder member is prevented, by means of threading provided along at least a part of the length of the exterior of the tee member and/or at least a part of the length of the interior of the holder member.
30 By rotating the tee member within the holder member this enables adjustment of its height to any height between two extremes as dictated by the length of the thread. In this way, the

means that allow intended movement of the tee member also act to prevent unwanted movement of the tee member relative to the holder member.

5 In a preferred embodiment the thread is buttressed in form. A buttress thread is one that is designed to withstand heavy axial thrust in one direction. In one example, a buttress thread may have one surface at 45 degrees to the axis whilst another surface may be perpendicular to the axis.

10 In a preferred embodiment there is provided means to prevent full insertion of the tee member into the holder member. Preferably this is provided by the tee member being longer than the holder member. This ensures that when the lower end of the tee member touches the base of the holder member there is always enough of the length of the tee member available above the holder member for the user to grip in order to adjust its height.

15 Preferably there is also provided means for indicating when the tee member is at its maximum workable height. This ensures there is enough mating between the threading to support the tee member during a shot.

20 In a preferred embodiment, the means for indicating when the tee member is at its maximum workable height comprises the topmost part of the threading of the tee member above the holder member, which can be seen by the player in use.

An embodiment of the present invention is described below, by way of example only and with reference to the accompanying drawings, in which:

- 25 Figure 1 shows a longitudinal cross-section of a holder member;
Figure 2 is an enlarged cross-section of the threading of Figure 1;
Figure 3 is a side view of a tee member;
Figure 4 is a longitudinal cross-section of a tee member;
Figure 5 is an enlarged cross-section of the threading of Figures 3 and 4;
30 Figure 6 is a longitudinal cross-section of the tee device in use, with the tee member at its lowest position; and

Figure 7 is a longitudinal cross-section of the tee device in use, with the tee member at a higher position.

With reference to Figure 1, a holder member comprises a hollow, substantially cylindrical housing 1 provided with buttress threading 2 on its interior wall. A tee device support 3 extends laterally from the exterior wall of the housing 1 at an angle substantially perpendicular to the longitudinal axis of the holder member. The holder member is preferably fabricated from a robust material such as metal, hard rubber or hard plastic, so that it is suitable as a semi-permanent fixture at a driving range. The choice of material will depend on the expected wear, length of use and cost. Fixing means may be provided, for example, holes through which screws can be driven may be provided in the tee device support 3.

Figure 2 shows in cross-section the buttress threading 2 of the housing of the holder member shown in Figure 1. In order to accommodate the buttress threading of the tee member (described below), in cross-section the buttress threading of the holder member housing 1 has a horizontal lower surface 11, a vertical side surface 12 and a sloping upper surface 13.

Figures 3 and 4 show a tee member that is suitable for insertion into the holder member of Figure 1. The tee member is a substantially cylindrical hollow rod 4. The rod 4 is of dimensions suitable for insertion into its corresponding holder member, and long enough such that it cannot be fully inserted into the holder member. Buttress threading 5 is provided on the exterior of the rod 4. The uppermost end of the rod 4 is provided with an indentation 6 to aid placing and support of a golf ball by a user. The tee member is preferably made from a resilient material such as rubber, to help prevent the tee member snapping under any accidental impact from the golf club.

Figure 5 shows in cross-section the buttress threading 5 of the rod 4 of the tee member shown in Figures 3 and 4. In order to mate with the buttress threading of the holder member, in cross-section the buttress threading of the tee member rod 4 has a horizontal upper surface 14, a vertical side surface 15 and a sloping lower surface 16.

Figures 6 and 7 show the arrangement of the tee member with the holder member in use. The holder member is placed into a hole 7 in the ground 8 of suitable dimension to accommodate the holder member. A stance mat 9 with an aperture 10 through which the holder member protrudes is placed over the holder member. The tee device support 3 rests on the ground 8 and under the stance mat 9 and supports the holder member at a suitable height above the ground. The rod 4 is screwed into the housing 1 such that the corresponding threads 2,5 mate, and the tee member is held firm within the holder member. Figure 6 shows the tee member at its lowest height, which may be typically 5 mm above the stance mat. The minimum height is defined by the lowest part of the rod 4 making contact with the bottom of the housing 1. At its minimum height, enough of the rod 4 remains above ground level for the user to grip the upper part of the rod 4 in order to further adjust the tee member. Figure 7 shows the tee member at a higher level. At its highest level, the ball will typically be 40 mm above the stance mat. At the highest workable height, there is enough mating between the threads 2,5 to fully support the tee member. When the threading 5 starts to show above the level of the stance mat 9, it is an indication that the tee member is above its maximum workable height.

In use, the holder member is preferably already in place under the stance mat. In fact, the holder member can be used to align the stance mat into the appropriate position, by ensuring that the aperture in the stance mat is placed over the holder member. The golfer may then insert his own tee member, or one may already be in place within the holder member. Having decided which shot he or she would like to practise, the golfer can adjust the tee member by rotating it around the threading within the holder member to the appropriate height for that shot and for that golfer. The golfer then places his or her golf ball into the indentation at the top of the tee member and plays the shot. If it is then desired to repeat the same shot, the tee member may be kept at the same height, for which no further adjustment will be necessary, or to change the height of the tee member in order to improve the shot. Alternatively, the golfer may wish to practice a different shot, in which case the tee device can be adjusted by rotation as appropriate.

If any damage occurs to the tee member, it can be replaced simply by unscrewing it from the holder member, and screwing in a new part. As long as the holder member remains in place there is no need to remove and replace the stance mat.

5 The tee device described in the present application is adjustable to any given height within a particular range. It is supported such that there is no risk of it moving or flying out of the holder member when the ball is struck. It also ensures no movement of the tee member relative to the holder member under impact from a golf club. Moreover, if the tee member does break, since it is totally accessible from above, it can be easily replaced by
10 unscrewing from the holder member, without need to lift the stance mat in order to replace the entire tee device. In addition, since it comprises only two main parts it will be relatively cheap and easy to produce, and simple to assemble and repair, in particular no tools are required to facilitate the use of or replacement of the tee member. Preferably, the tee member is fabricated from a material that gives a similar "feel" to a regulation golf tee.

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Because the holder member is preferably a semi-permanent fixture, it is held fast rendering it relatively easy to adjust the tee member by rotation.

A modification may be envisaged whereby instead of being recessed in a hole in the
20 ground, the holder member may comprise a base that sits upon the ground. Since in this embodiment, there will be a smaller distance available for the tee member to travel within the holder member, it would be advantageous to provide two tee members of different lengths. This embodiment can be used on any flat surface without the need for being set into a specialised hole in the ground. This version of the device may be fixed to the
25 ground, or may be weighted such that it remains grounded on impact.

In an alternative embodiment, the tee member may be formed from a rod of solid construction instead of a hollow rod.

30 In an alternative embodiment, a latching or detent mechanism may be provided to indicate when the tee member has reached its maximum workable height. Such mechanisms are known in the art, in which a certain resistance is felt when the maximum workable height

is reached, but this resistance should be overcome by application of a little extra force in order that the tee member remain easily removable. Other means to prevent full insertion of the tee member into the holder member may also be envisaged. For example, an inwardly extending abutment on the internal wall of the holder member housing could
5 serve to prevent excessive insertion of the tee member.

Alternatives to the buttress threading can be envisaged. Although in the preferred embodiment the upper surface is horizontal and the side surface is vertical, threading that in cross-section has surfaces at different angles could also perform satisfactorily for the
10 purposes of the present invention. Conventional threading may be used, in which case the upper and lower surfaces will meet at an edge so that there is no separate side surface.

In the preferred embodiment the threading is present on both the exterior of the tee member rod, and the interior wall of the holder member housing. Alternative
15 embodiments may utilise threading on only the tee member rod or on the holder member housing. The threading may mate with projections extending from the other member. The projections may be elongated such that they form a discontinuous thread that mates with the threading provided on its partner member. In another alternative embodiment, the inner wall of the holder member housing may include a layer of relatively soft material, in
20 which a thread is formed as the tee member is inserted into the holder member so that the arrangement is self tapping.